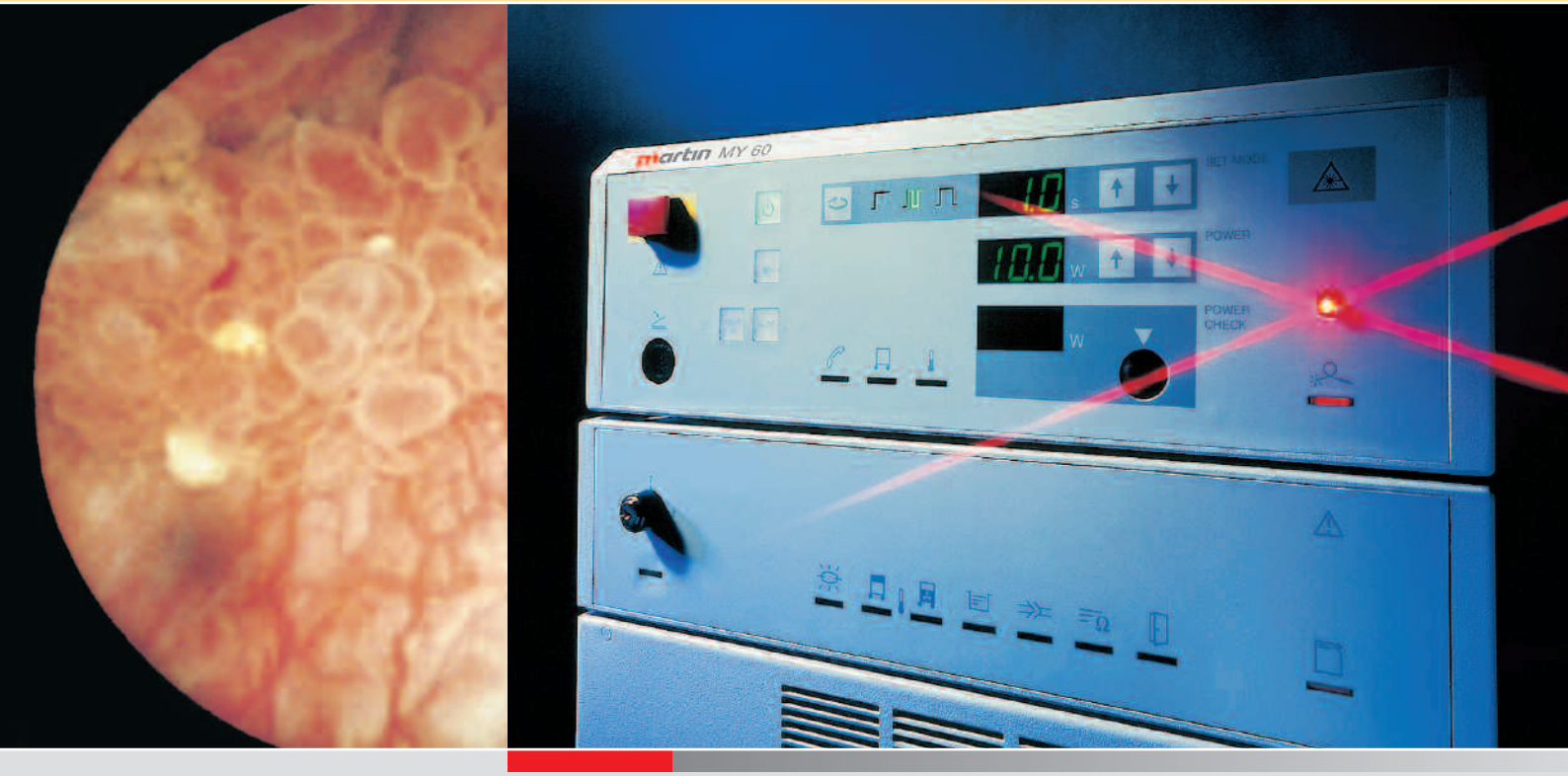
Laser



KLS Martin Laser Nd:YAG MY60 and Accessories

NEW DIMENSIONS IN LASER MEDICINE

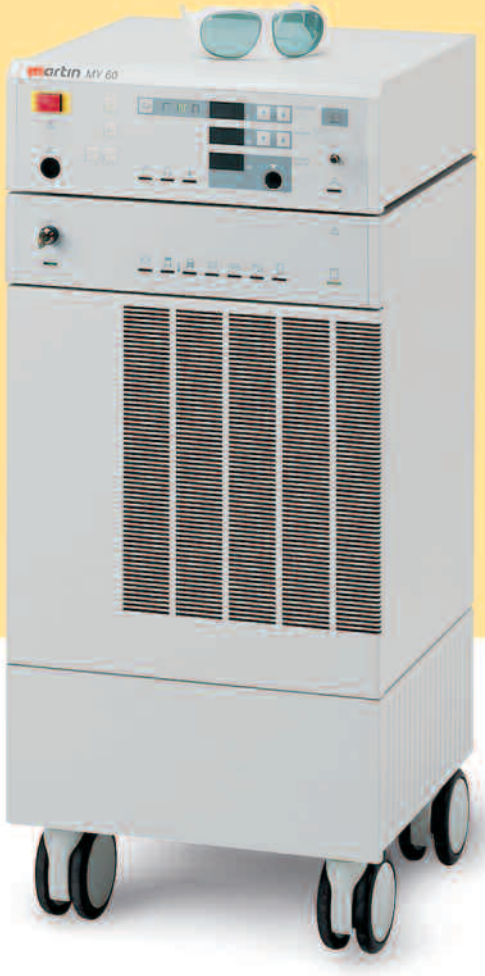
KLS martin GROUP

KLS Martin Laser Nd:YAG MY 60 New Dimensions in Laser Medicine

The KLS Martin Laser MY60 is a compact, microprocessor-controlled, continuos-wave solid-state laser. Its excellent, thought-out design provides for highest levels of safety and operating efficiency.

The advantages at a glance

- The laser head and supply unit have been separated for the first time.
- Advanced solid-state laser technology with solid quartz cavity.
- Top irradiation quality – in addition to 600-µm and 400-µm fibers, super-thin 300-µm fibers are available for superior power density across the entire power range.
- Cross-system use due to SMA-905 fiber connection.
- Multiple protection of SMA fiber connector and the focusing lenses by heat sensor, integrated protective glass and protective cover.
- Excellent power stability over the whole power range thanks to online power control.
- Integration of optomechanical components into a rugged, torsionally rigid, hermetically sealed laser block ensures:
  - that no user readjustments are necessary
  - permanent availability of the laser.
- A highly sophisticated design shows in utmost user-friendliness and easiness of use: just a few buttons give the user full control over a powerful and intelligent device.
- Special function display (total energy applied, stop watch and pulse counter).
- High level of operating and functional safety with microprocessor-controlled multiple monitoring of all operating functions.
- The electronically controlled coupling-in system guarantees troublefree laser transmission through the fiber.
- Minimum space requirements (W x D = 405 x 380 mm).



KLS Martin Laser MY 60
Stand-alone version

Contents

Medical Application Areas	Pages 4-5
Technical data and ordering data	Pages 6-7
Laser Focusing Handpiece	Pages 8-9
Gas Flow Controller MY Gas 2	Page 10
KLS Martin Optical Fibers	Page 11
Laser Cystoscope according to Aeikens	Pages 12-14
KLS Martin Fiber Holder	Page 15

Medical Application Areas

The excellent beam quality provided by the KLS Martin Laser MY60 allows transmission through thin 260 µm fibers. This means that lasers application through microendoscopes and guidable catheters is possible at a minimum working channel diameter of 500 µm. The use of 260 µm fibers results in very high power densities even to low power levels. This allows high-precision tissue preparation while thermal damage is kept at a minimum - a fact that provides new application opportunities, e.g. in the intraluminal or micro-surgical fields. The guaranteed power stability – lower power range included – is an essential prerequisite for a controlled application of laser energy.

Application Areas

The following list gives some examples of application fields where the KLS Martin Laser MY60 can be used for softtissue coagulation, vaporization or cutting, either on an endoscopic or open-surgery basis using a contact or non-contact technique.

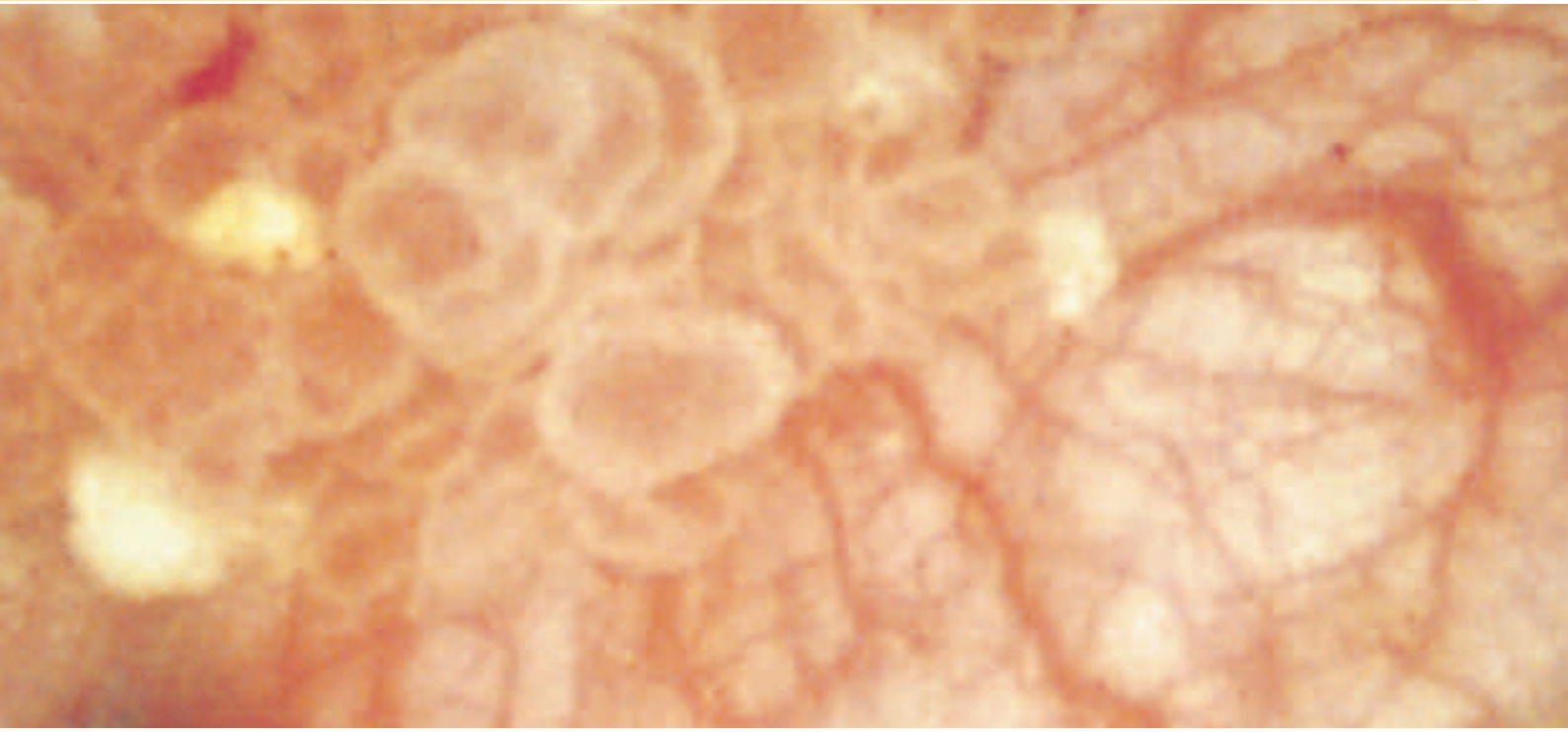
Respiratory tract
- Nasal polyps
- Tonsils
- Tracheal and bronchial stenoses
- Tracheal and bronchial fistulas
- Fistulas
- Sinuses
- Epistaxis
- Nasal turbinates

Oral cavity
- Tumors of the tongue
- Partial Velumremoval

Gastrointestinal tract
- Oesophageal stenoses and strictures
- Oesophagotracheal fistulas
- Hemorrhages
- Polyps

Abdominal cavity/laparoscopy
- Cholecystectomy
- Appendectomy
- Adhesiolysis
- Abscess cavities
- Loop abscesses
- Retroperitoneal lymphadenectomy
- Lymph nodes resection
- Vagotomy

Urogenital tract
- Condylomata acuminata
- Stenosis of urethra
- Bladder tumors
- Prostate adenoma
- Penile carcinoma
- Tumor-nephrectomy



Gynecology
- Endometriosis
- Benign endometrial polyps
- Submucous febroids
- Uterine septum
- Polycystic ovary desease (PCOD)
- Tubes
- Refertilization
- Hysterectomy

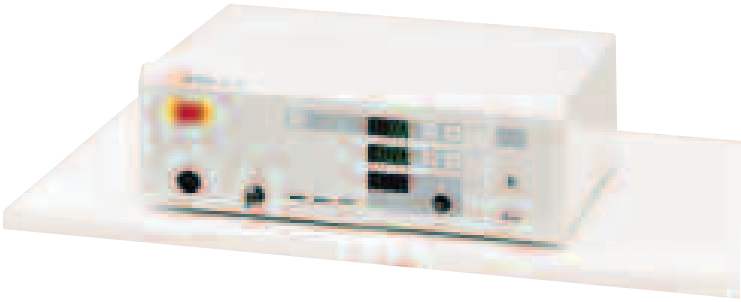
Proctology
- Anal stenoses
- Marisques
- Fistulas
- Hemorrhoids
- Anal fissures
- Condylomata acuminata
- Polyps
- Colorectal carcinoma

Oncology
- Recanalization
- Tumor resection

Dermal and integumentary systems
- Verrucae
- Benign tumors of the skin
- Cutaneous/subcutaneous secondaries of malignancies
- Inoperable basal cell carcinoma
- Recurrencies

Vascular system
- Vascular malformations
- Haemangioma
- Varices
- Teleangiectasis

Wide range of individual setup and configuration opportunities thanks to the separation of laser head from the supply unit



Stand-alone version

Due to its compact design, the stand-alone version requires only minimum space and is easily transportable, especially so since it comes equipped with large, smooth-running castors.

Accessories are easily accessible in the roomy, integrated drawer element.

The apparatus has a removable flyer unit to provide a safe place for the laser applicators when not in use. The flyer can be autoclaved at 134°C.

Separate version

KLS Martin Laser MY 60 with separate installation of laser head and supply unit

The compact laser head can be used very efficiently when installed on a ceiling mount. This ensures constant availability in the course of an operation with minimum space requirements.

By this separation of the laser head from the supply unit, even the strictest hygiene requirements are fulfilled.

The noise-free operation of the laser unit will be highly appreciated by surgical teams.

Less cleaning needed in operation-rooms.

Technical Data

KLS Martin Laser MY60

Type of laser
Nd:YAG laser, 1064 nm, continuous-wave (cw)
Protection Class I
Laser protection class IV
Power applied to the tissue
0.5 - 60 W
Modes of operation
• Continuous-wave (cw)
• Pulse mode
- Single pulse
- Pulse repetition
Time increments:
0.1 s between 0.1 and 1.0 s
1 s between 1 and 10 s
- Pulse repetition:
ON/OFF time options: 1/1, 1/2, 1/3
Pilot laser
1 mW, cw, red
5 mW, cw, red
Wavelength 670 ± 10 nm
Control
Microprocessor
Values displayed
Operating mode, laser power, pulse duration, pilot laser stage, special values (total energy applied, pulse rate, irradiation time)
Cooling
Air-cooled system with closed water circulation system
Optical fiber connector
Numerical aperture of coupler: NA < 0.2 SMA-905 connector, suitable for fibers with 260, 400, 600 µm core diameter and NA > 0.2
Integrated automatic fiber tester

Dimensions (W x D x H) and weights	
Laser head:	405 x 380 x 135 mm
Weight:	12 kg (excl. supply line)
Supply unit with drawer:	405 x 380 x 775 mm
Weight:	61 kg

Electrical connection
208 - 240 V AC, 50/60 Hz, 16 A
CE marking conform with 93/42/EEC

Ordering Data

79-060-10	KLS Martin Laser Nd:YAG MY60 Stand-alone version

Ordering Data

Scope of Delivery KLS Martin Laser MY60

	Stand-alone Version	Separate unit
Laser head	✓	✓
Supply unit	✓	✓
Foot switch, two-step	✓	✓
Umbilical cord	–	to be ordered separately
Drawer element	✓	–
Flyer and support bracket	✓	–
Deionization cartridge	✓	✓
Cover	✓	✓
Fiber test adapter	✓	✓
Rollers	✓	✓
Potential equalization lead	✓	✓
Two laser warning signs	✓	✓
User manual	✓	✓

Accessories

79-100-50	Anti-laser goggles** ①
79-100-51	Anti-laser goggles for users wearing glasses* ②
79-100-80	Laser protective filter for all Kls Martin endoscopes* ③
79-111-00	Fiber preparation set, autoclavable
79-210-00	Protective glass for fiber tester
79-220-00	Silicon pad for flyer and fiber preparation set
79-240-00	Replacement filter mat for fan
79-245-00	Deionization cartridge
79-200-01	Foot switch, two-step
79-210-01	SMA connector cover
79-120-00	Flyer
79-121-00	Supporting bracket
79-101-00	Umbilical cord, 12 m length

* D 1060 L6 RH DIN CE acc. to 89/686/EEC (PSA)

** D 1060 L7 RH DIN CE acc. to 89/686/EEC (PSA)

Focusing Handpieces *see pages 8 – 9*
Gas Flow Controller MY GAS 2 *see page 10*
KLS Martin Optical Fibers *see page 11*
Laser Cystoscope acc. to Aeikens *see pages 12 – 14*
Fiber holder *see page 15*

The KLS Martin Laser MY60 Makes it Possible:

Effective cutting, vaporization, coagulation and sealing on a non-contact basis and without any need to exchange instruments. To make use of different focal distances, you simply need to exchange the front lens.

Thanks to the high-transmitting laser fibers and one of the best laser focusing handpieces available on the market, extremely high power densities can be achieved in the focus of the beam.

Highly magnified beam image

The power density is extremely uniform across the entire beam focus profile (Ø 0.6 mm)

Features of the KLS Martin Focusing Handpiece for KLS Martin Laser MY60

Using high-quality materials, we have developed a top-notch optical system for optimal application of the Nd:YAG laser light. **The result is an extremely high power density in the focal spot when using KLS Martin Nd:YAG lasers in conjunction with 400-µm fibers.** In physiological terms, this translates into excellent cutting, vaporization and coagulation properties, with the laser beam applied to the target tissue on a non-contact basis.
An optimized gas flow, via the fiber and the handle, ensures a gas irrigation efficiency previously unknown in this product area. The gas flow clears the optical path from light-absorbing particles (plume and tissue debris) that may be present between the laser focusing handpiece and the target tissue. This reliably prevents focusing lens soiling.
Two different focal lengths – 30 mm and 50 mm – are available which, together with a whole range of different front sleeves, provide for optimal adjustment of the laser light to specific surgical tasks. The modular design of the handle ensures that the front lens can be easily exchanged for focal length variation. The exchangeable front sleeves, in turn, provide flexibility in terms of working distance. The beam spot profile exhibits an extremely uniform power density across the entire spot surface.

The front sleeves are available in a threaded version and in a push-on design. The latter is specifically intended for use with sterile drapes. The well-thought-out service concept – with a quick-action connector linking the fiber to the handpiece and easily exchangeable front lenses – increases the instrument's readiness for use in routine clinical practice, especially so because any such adjustments can be easily carried out by the user him-/herself.

Focusing handpiece power densities

Laser fiber Ø (µm)	Front sleeve focal length (mm)	Focus Ø (µm)	Power density kW/cm2 Laser power at 60 W
260	30	380	52.9
260	50	600	21.2
400	30	590	22.0
400	50	900	7.4

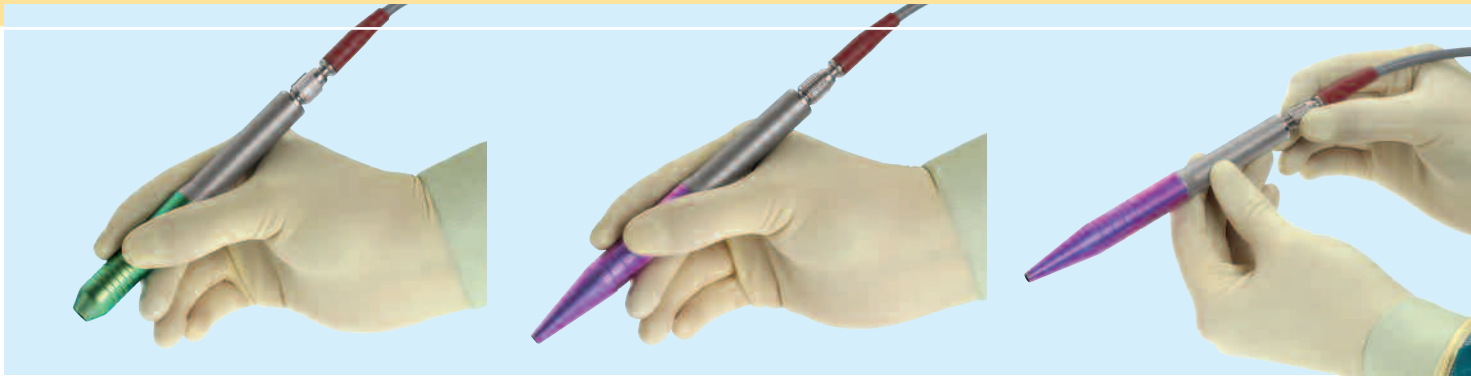
Fields of application:
Dermatology and open-surgical applications across all medical specializations

Application field examples:
- oral cavity
- abdominal cavity, thoracic cavity
- external genital
- tumor surgery
- skin and cutaneous appendages

Application examples:
- treatment of warts, acuminate condylomas, leucoplakias
- coagulation of vascular malformations and hemangiomas
- removal of tongue tumors
- endometriosis therapy
- cutting and coagulation of liver, spleen, kidney and pancreatic parenchyma

Focusing handpiece with threaded sleeve

Focusing handpiece with push-on sleeve



Depending on the lens-sleeve combination used (note the color-coding), different working distances are obtained as specified in the table.

Sleeve	Front/focusing lens	Working distance
short, green	30 mm, green	12 mm
long, lilac	50 mm, lilac	12 mm
short, green	50 mm, lilac	35 mm

Focusing handpiece

Item no.	Designation
78-201-00-04	Basic body for threaded sleeves for focusing handpiece
78-201-01-04	Basic body for push-on sleeves for focusing handpiece
78-202-30-09	Front sleeve, short, green, threaded, for 78-201-00-04
78-202-31-04	Front sleeve, short, green, push-on
78-202-50-09	Front sleeve, long, lilac, threaded, for 78-201-00-04
78-202-51-04	Front sleeve, long, lilac, push-on
78-210-30-04	Front lens, green, f = 30 mm, for 78-201-00-04 and 78-201-01-04
78-210-50-04	Front lens, lilac, f = 50 mm, for 78-201-00-04 and 78-201-01-04
78-222-00-04	Adapter for push-on front sleeves, for retrofitting 78-201-00-04 to 78-201-01-04 (already included in 78-201-01-04)
79-300-26-04	Fibers for Laser focusing handpiece
79-300-40-04	Fibers for Laser focusing handpiece
80-181-90-04	Sterile filter for MY Gas 2

Small yet efficient

KLS Martin MY GAS 2 Gas Flow Controller

By combining the KLS Martin Gas flow Controller MY GAS 2 with the KLS Martin Laser MY 60, a steady and economical gas consumption for irrigation is achieved during laser application.

The gas flow can be controlled via a two-step foot switch belonging to the laser unit. Both “active” or working gas flow and “passive” gas flow are adjustable separately.

The MY GAS 2 device is attached to the laser unit with a magnetic foil.

Ordering information

78-231-00	KLS Martin Gas Flow Controller MY GAS 2, incl. cable for connection to KLS Martin Laser MY 60 and adapter for gas cylinder equipped with safety valve
83-100-30	Silicone tube (MY GAS to fiber)

A flexible pressure tube (78-215-01) is required for operating the Controller on a central gas supply system (max. 5 bar).

When using gas cylinders, a pressure reducer is required (set 79-060-91 incl. connection tubing).

Optional:
Gas cylinder holder for 0.7-l gas cylinders (79-131-00).

Technical Specifications

Power supply	100 – 240 V AC 50 / 60 Hz
Suitable gases	CO_2, N_2, Ar, pressurized air
Permissible pressure	max. 5 bar
Dimensions	150 x 60 x 131 mm (W x H x D)
Weight	1.47 kg
Gas cylinder connection	G 1/4" thread
Output connector	Luer-Lock connector
Opening pressure	5 bar
CE marking conform with 93/42/EEC	

KLS Martin Optical Fibers

The KLS Martin optical fibers have been specially designed for use with SMA-905 compatible Nd:YAG and argon laser units. These fibers are suitable for use in the following areas:

- gastro-enterology
- gynaecology
- laparoscopic surgery
- open surgery
- urology
- ENT
- pneumonology

The laser fibers are delivered for single use in a sterile, adhesive-free and ultrasound-sealed packing. The plastic tray packing makes it possible for the user to take out the proximal and distal fiber ends separately and under sterile conditions.

For intra-operative preparation of the bare fibers (300 µm, 400 µm and 600 µm) we can recommend using the KLS Martin Fiber Preparation Set (79-111-00).

KLS Martin Optical Fibers

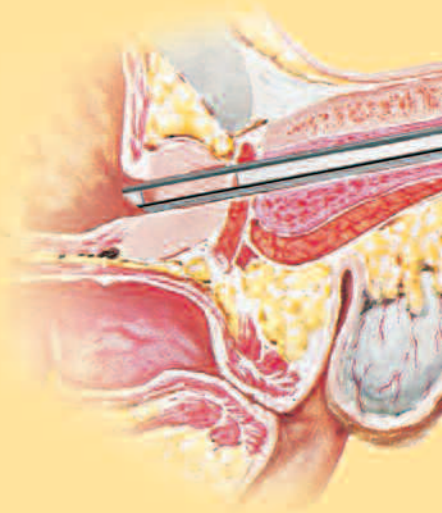
	Core diameter	Optical material	External diameter	Article/Order number	unit pack
Quartz fibers*	300 µm***	Quartz	0.45 mm	79-700-30	5 pieces
	400 µm	Quartz	0.74 mm	79-700-40	5 pieces
	600 µm	Quartz	1.05 mm	79-700-60	5 pieces
Gas-irrigated fiber*	400 µm*	Quartz	2000 µm	79-345-30	5 pieces
Fibers for focusing handpiece**	260 µm***	Quartz	5.3 mm	79-300-26	1 piece
	400 µm	Quartz	5.3 mm	79-300-40	1 piece
Fiber irrigation tubing for quartz fibers (disposable product)**	–	–	1.7 mm (external) 1.4 mm (internal)	79-300-05	10 pieces

All fibers have a length of 3 m.

* Fibers for single use, suitable for KLS Martin Laser MY60, KLS Martin Laser MY40, diomax®
** Reusable fibers, non-sterile packing
*** Only for KLS Martin Laser MY60

Laser Cystoscope according to Aeikens

The Laser Cystoscope according to Aeikens is used for tissue coagulation and cutting in transurethral urological surgery, particularly in treating benign prostatic hyper-plasia, bladder and urethral tumors, and for removing urethral strictures.



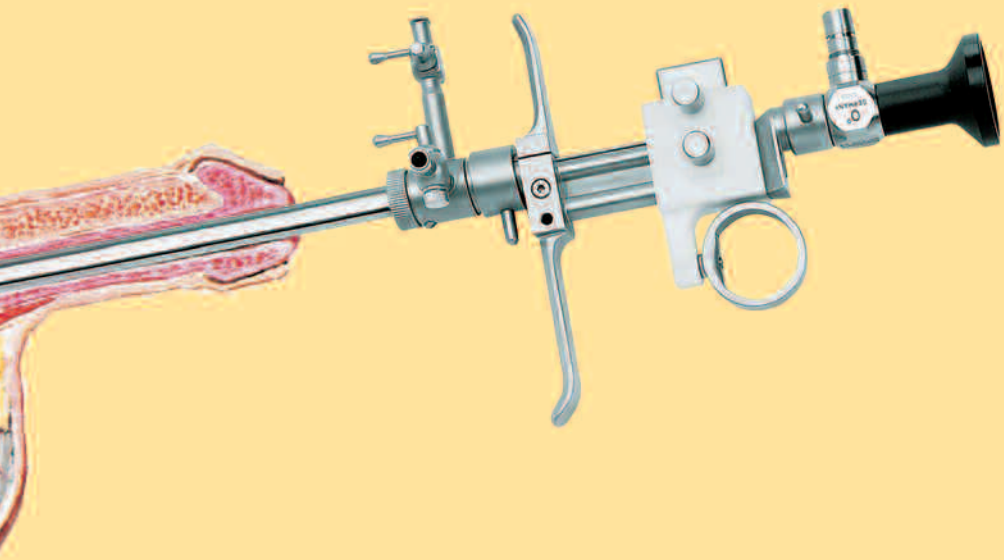
As the Cystoscope is similar in design to a resectoscope, the surgeon will soon get familiar with using and handling the instrument.

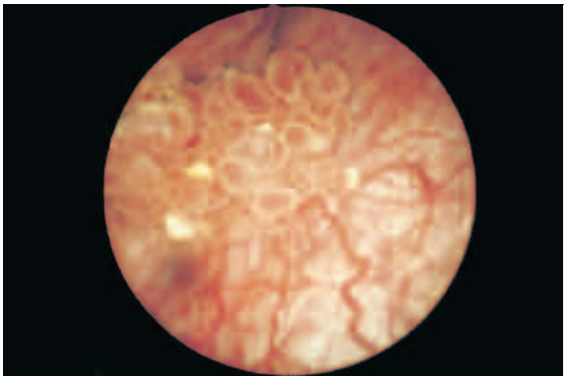
In surgical use, the Laser Cystoscope allows utmost precision in controlling and positioning a bare fiber (400 µm), with the further advantages that such a fiber is very inexpensive compared to a sidefiring fiber and easily be reprepared.

This instrument can be easily disassembled into its component parts, which facilitates thorough cleaning and proper preparation for further use. Top-quality materials and state-of-the-art manufacturing methods also guarantee utmost reliability in everyday surgical use.

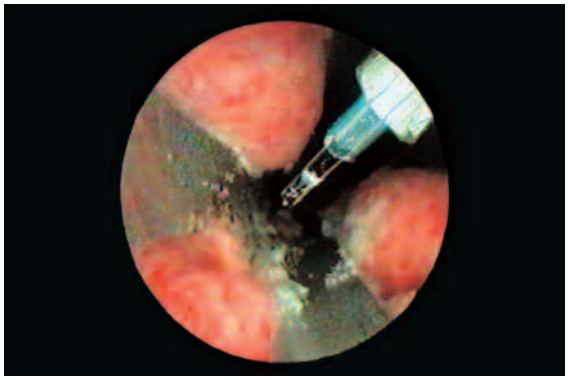
Major fields of application in urology:

Hemorrhage-free removal of urethral strictures



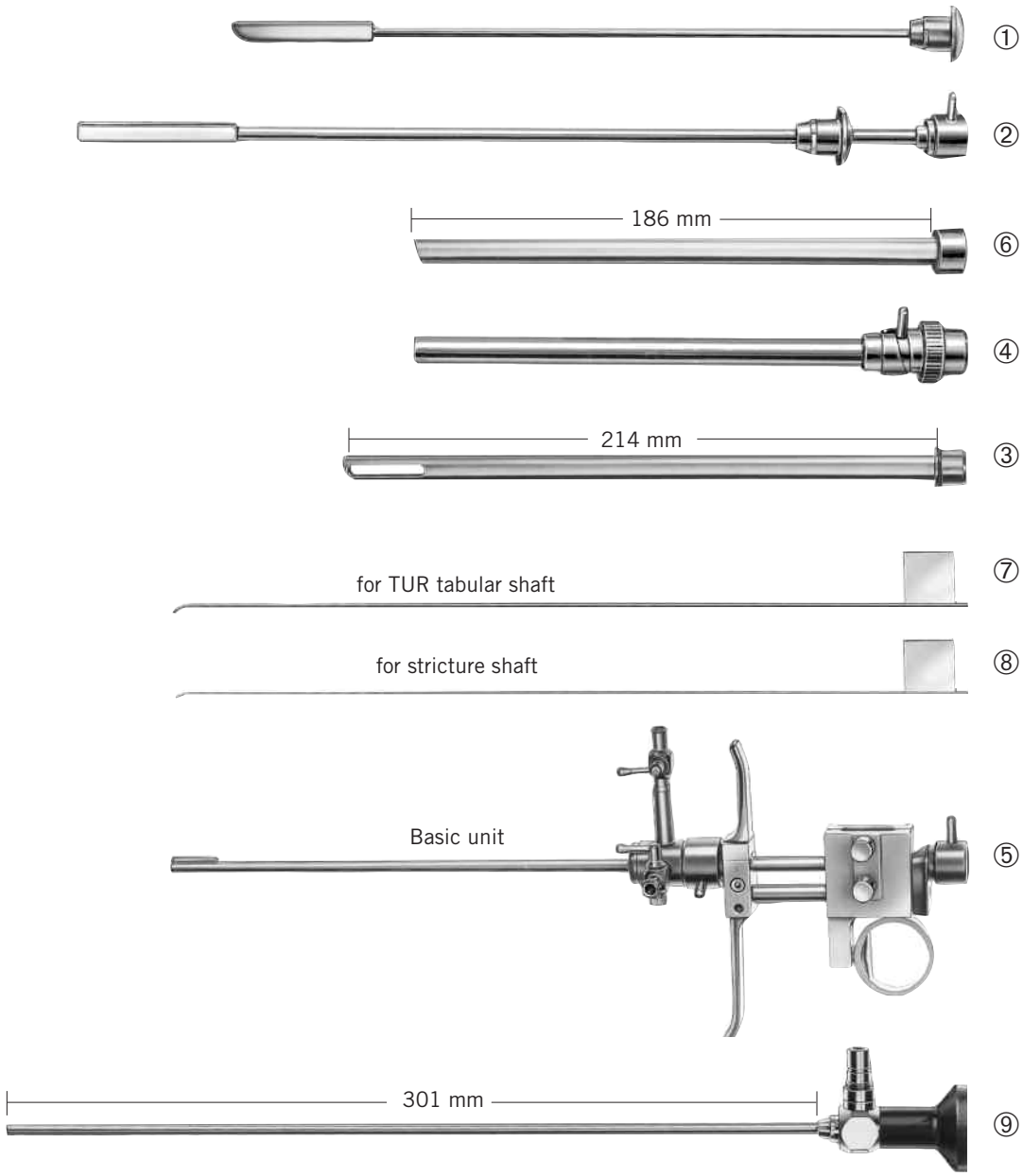


Bladder and urethral tumors
The tumor bed is laser-treated in order to stop bleeding and achieve a thorough, deep-reaching destruction of the tumor tissue. Subsequently, classical resection of the tumor tissue by using a HF loop.



Prostatic adenomas
The Laser Cystoscope was specially developed for laser coagulation in connection with the prostate resection method developed by Prof. Aeikens. By using Nd:YAG laser light, the hitherto “bloody” process of adenoma resection is transformed into an operation that can be performed hemorrhage-free.

Ordering Data Laser Cystoscope acc. to Aeikens



Laser Cystoscope Basic Set

78-400-00	Laser cystoscope basic set
	consisting of:
1 piece	basic unit ⑤
1 piece	TUR tubular shaft, long, oval ③
1 piece	obturator ①
1 piece	fiber tube ⑦

Accessories

79-700-40	Bare fiber 400 µm (5 items)
79-100-50	Anti-laser goggles
79-100-51	Anti-laser goggles for users wearing glasses
79-100-80	Laser protective filter for endoscope
79-110-00	Fiber preparation set
83-204-00	Urological lenses, Ø 4 mm, 0°, suitable for autoclaving ⑨

Optional accessories

78-400-01	TUR tubular shaft, long, oval, 24 Charr. ③
78-400-02	Tubular shaft, short, oval, 24 Charr. ⑥
78-400-03	Fiber tube for TUR tubular shaft ⑦
78-400-04	Obturator ①
78-400-10	Knurled nit
78-400-11	Sealing ring (10 pieces)
78-400-12	Spare parts set
78-400-05	Stricture shaft ④
78-401-03	Fiber tube for stricture shaft ⑧
78-401-04	Optical opturator ②

CE marking conform with 93/42/EEC

KLS Martin Fiber Holder

The KLS Martin Fiber Holder is modular in design and consists of two elements:

- handpiece
- tip attachment

The replaceable tip attachments are available in different lengths ranging from 5 to 28 cm. This allows ideal "customization" to specific anatomical requirements. To guarantee optimal positioning of the laser fiber at the place of application, the tip attachment tube can be bent / adjusted with the help of the bending mandrel supplied.

To protect the fiber tip when the instrument is temporarily out of use in the course of an operation or when the fiber holder is inserted into the tube, the holder has been equipped with a sliding mechanism.

Thanks to the Luer-Lock connector, the fiber tip as well as the tissue can be cooled by using either a gas or a liquid. To facilitate and ensure proper cleaning, the fiber holder can be completely dis-assembled and autoclaved at 134°C.

Ordering Data

78-300-10	Handpiece
78-310-05	Tip attachment with bending mandrel, 15 cm
78-310-08	Tip attachment with bending mandrel, 18 cm
78-310-13	Tip attachment with bending mandrel, 13 cm
78-310-18	Tip attachment with bending mandrel, 18 cm
78-310-23	Tip attachment with bending mandrel, 23 cm
78-310-28	Tip attachment with bending mandrel, 28 cm
78-310-01	Tip attachment Luer-Lock connector
78-300-01	Spare parts set for handpiece 78-300-10

CE marking conform with 93/42/EEC

KLS Martin Group

Karl Leibinger GmbH & Co. KG
78570 Mühlheim
Germany
Tel. +49 7463 838-0
info@klsmartin.com

Stuckenbrock Medizintechnik GmbH
78532 Tuttlingen
Germany
Tel. +49 7461 16 58 80
verwaltung@stuckenbrock.de

KLS Martin GmbH + Co. KG
79224 Umkirch
Germany
Tel. +49 7665 9802-0
info@klsmartin.com

Rudolf Buck GmbH
78570 Mühlheim
Germany
Tel. +49 7463 99516-30
info@klsmartin.com

KLS Martin France SARL
68000 Colmar
France
Tel. +33 3 89 21 66 01
france@klsmartin.com

Martin Italia S.r.l.
20059 Vimercate (MB)
Italy
Tel. +39 039 605 67 31
italia@klsmartin.com

Martin Nederland/Marned B.V.
1270 AG Huizen
The Netherlands
Tel. +31 35 523 45 38
nederland@klsmartin.com

Nippon Martin K.K.
Osaka 541-0046
Japan
Tel. +81 6 62 28 90 75
nippon@klsmartin.com

Gebrüder Martin GmbH & Co. KG
Representative Office
121471 Moscow
Russia
Tel. +7 (499) 792-76-19
russia@klsmartin.com

KLS Martin L.P.
Jacksonville, Fl 32246
USA
Office phone +1 904 641 77 46
usa@klsmartin.com

Orthosurgical Implants Inc.
Miami, Fl 33186
USA
Office phone +1 877 969 45 45
sales@orthosurgical.com

Gebrüder Martin GmbH & Co. KG
A company of the KLS Martin Group
KLS Martin Platz 1 · D-78532 Tuttlingen
Postfach 60 · D-78501 Tuttlingen
Tel. +49 7461 706-0 · Fax +49 7461 706-193
info@klsmartin.com · www.klsmartin.com

CE 0297

01.10 · 90-144-02-07 · Printed in Germany · Copyright by Gebrüder Martin GmbH & Co. KG · Alle Rechte vorbehalten · Technische Änderungen vorbehalten
We reserve the right to make alterations · Cambios técnicos reservados · Sous réserve de modifications techniques · Ci riserviamo il diritto di modifiche tecniche